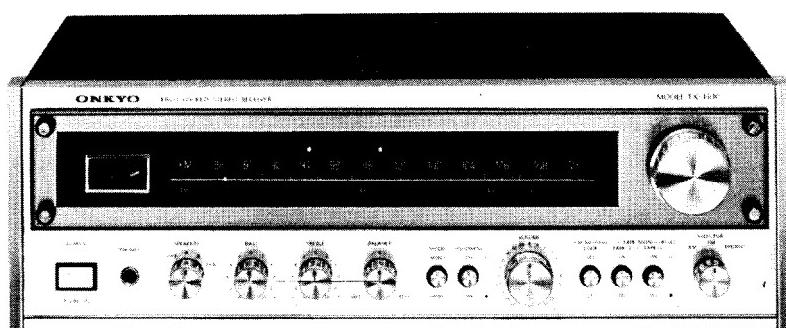


ONKYO® SERVICE MANUAL

SERVO LOCKED FM/AM STEREO RECEIVER

Model TX-1500



ONKYO®
AUDIO COMPONENTS

SPECIFICATIONS

U.S.A. Model

Amplifier section

Power Output	15 watts per channel, min. RMS, at 8 ohms or 4 ohms, both channels driven, from 20 Hz to 20 kHz, with no more than 0.5 % total harmonic distortion.
	17 watts per channel, min. RMS, at 8 ohms both channels driven, 1 kHz, 0.5 % THD.
	20 watts per channel, min. RMS, at 4 ohms both channels driven, 1 kHz, 0.5 % THD.
Total Harmonic Distortion	0.5 % at rated power
IM Distortion	0.3 % at 1 watt output
Damping Factor	0.5 % at rated power
Frequency Response	0.3 % at 1 watt output
Sensitivity and Impedance	20 (8 ohms 1 kHz 10 watts) 20 - 30,000 Hz (± 1 dB)
Phono Overload	PHONO: 2.5 mV 50 kohms
Bass Control	TAPE PLAY: 150 mV 50 kohms
Treble Control	TAPE REC: 150 mV 50 kohms
Signal-to-Noise Ratio	100 mV RMS 1 kHz 0.5 % THD ± 12 dB at 100 Hz ± 10 dB at 10 kHz
RIAA Curve Deviation	PHONO: 65 dB (IHF C NETWORK) TAPE: 80 dB (IHF C NETWORK)
	± 0.8 dB at 30 Hz to 15 kHz

Tuner section

Tuning Range	FM: 88 - 108 MHz AM: 530 - 1605 kHz
Usable Sensitivity	FM mono: 2.3 μ V 12.4 dBf FM stereo: 5 μ V 19.2 dBf
50 dB Quieting Sensitivity	AM: 25 μ V
Intermediate Frequency	FM mono: 4.5 μ V 18.3 dBf
Capture Ratio	FM stereo: 50 μ V 39.2 dBf
Image Rejection	FM: 10.7 MHz AM: 455 kHz
IF Rejection	FM: 2 dB
Signal-to-Noise Ratio	FM: 45 dB AM: 40 dB
	FM: 80 dB AM: 30 dB
Alternate Channel Att.	FM mono: 65 dB
AM Suppression	FM stereo: 60 dB
Harmonic Distortion	AM: 40 dB
Frequency Response	FM: 60 dB
Stereo Separation	FM: 50 dB
Muting Level	FM mono: 0.25 % AM: 0.9 %
Stereo Lamp Level	FM stereo: 0.5 %
Locking Level	FM: 30 - 15,000 Hz ± 1.5 dB
Tuning Meter	FM: 35 dB at 1 kHz 30 dB at 100 - 10,000 Hz

General

Power Supply	AC 120 V 60 Hz.
Dimensions (W x H x D)	17-5/16" x 5-7/8" x 12-3/16" 439 x 149 x 310 mm
Weight	16.1 lbs. 7.3 kg.

Universal Model

Amplifier section

Power Output	70 watts total at 4 ohms 0.5 % THD. 20 watts per channel, min. RMS, at 4 ohms both channels driven, 0.5 % THD. at 1 kHz
	17 watts per channel, min. RMS, at 8 ohms both channels driven, 0.5 % THD. at 1 kHz
	15 watts per channel, min. RMS, at 4 ohms or 8 ohms both channels driven, from 20 Hz to 20 kHz, 0.5 % THD. 0.5 % at rated power
Total Harmonic Distortion	0.3 % at 1 watt output
IM Distortion	0.5 % at rated power (70 Hz: 7 kHz = 4 : 1) 0.3 % at 1 watt output
Damping Factor	20 (8 ohms 1 kHz)
Frequency Response	20 - 20,000 Hz (± 1 dB)
Sensitivity and Impedance	PHONO: 2.5 mV 50 kohms TAPE PLAY: 150 mV 50 kohms TAPE REC: 150 mV 50 kohms 100 mV RMS at 1 kHz 0.5 % THD.
Phono Overload	BASS ± 12 dB at 100 Hz
Tone Control	TREBLE ± 10 dB at 10 kHz
Signal-to-Noise Ratio	PHONO: 65 dB (IHF C NETWORK) TAPE: 80 dB (IHF C NETWORK)
RIAA Curve Deviation	± 0.8 dB at 30 Hz to 15 kHz

Tuner section

Tuning Range	FM: 88 - 108 MHz AM: 530 - 1605 kHz
Usable Sensitivity	FM mono: 2.3 μ V (12.4 dBf) IHF 1.8 μ V (S/N 26 dB, 40 kHz Devi.) DIN
50 dB Quieting Sensitivity	FM stereo: 5 μ V (19.2 dBf) IHF 50 μ V (S/N 46 dB, 40 kHz Devi.) DIN
Intermediate Frequency	AM: 25 μ V
Capture Ratio	FM mono: 4.5 μ V (18.3 dBf)
Image Rejection Ratio	FM stereo: 50 μ V (39.2 dBf)
IF Rejection Ratio	FM: 10.7 MHz AM: 455 kHz
Signal-to-Noise Ratio	FM: 2 dB
Alternate Channel Att. Selectivity	FM: 45 dB AM: 40 dB
AM Suppression Ratio	FM: 80 dB AM: 30 dB
Harmonic Distortion	FM mono: 65 dB AM: 40 dB
Frequency Response	FM stereo: 60 dB
Deemphasis Switch	FM: 60 dB
Stereo Separation	FM: 42 dB DIN (± 300 kHz, 40 kHz Devi.)
Muting Level	FM: 50 dB
Stereo Threshold	FM mono: 0.25 % AM: 0.9 %
Servo Lock Lamp Level	FM stereo: 0.5 %
Spurious Rejection	FM: 30 - 15,000 Hz ± 1.5 dB
Sub Carrier Suppression	FM: 50 μ s/75 μ s
Tuning Meter	FM stereo: 35 dB at 1 kHz
	30 dB at 100 - 10,000 Hz

General

Power Supply Rating Controls	AC 110/120/220/240 volts 50/60 Hz POWER SPEAKERS (OFF, A, B, A+B) SELECTOR (AM, FM, PHONO) TAPE MONITOR 1 & 2 TUNING, VOLUME, BALANCE, TREBLE, BASS FM MUTING/SERVO LOCK SWITCH LOUDNESS, MODE
Antennas	FM: 300 ohms balanced AM: built in ferrite core antenna and external terminal
Outputs	SPEAKER A & B, HEADPHONES TAPE REC OUT 1 & 2, DIN REC OUT
Inputs	PHONO, TAPE PLAY 1 & 2, DIN PLAY
Dimensions	FM & AM ANTENNA 439 W x 149 H x 310 D mm
Weight	7.3 kg.
Semiconductors	1 FET, 12 Transistors, 7 ICs, 21 Diodes

Specifications and features are subject to change without notice.

SERVICE PROCEDURES

1. REMOVAL OF DIAL GLASS

- (1) Pull TUNING knob off the TUNING shaft.
- (2) Remove four hex volts.

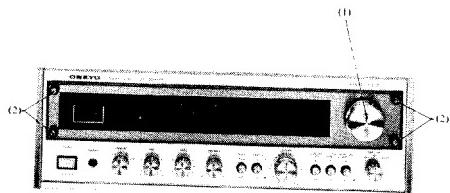


fig-1

2. REMOVAL OF FRONT PANEL

- (1) Pull all knobs off control shafts.
- (2) Remove two hex volts.
- (2) Remove three screws.

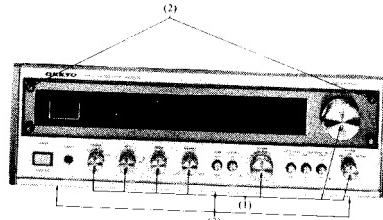


fig-2

3. REPLACING STEREO / LOCKED INDICATOR (L.E.D.)

- (1) Remove four screws which hold the top cover to the chassis and lift off the top cover.
- (2) Remove a screw which hold the PC board to the front bracket.
- (3) There is a cathode mark on the foot of L.E.D.

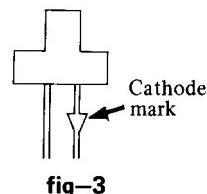


fig-3

4. REPLACING DIAL LAMP

- (1) Remove four screws which hold the top cover to the chassis and lift off the top cover.
- (2) Remove the two screws which hold the lamp case to the front bracket.

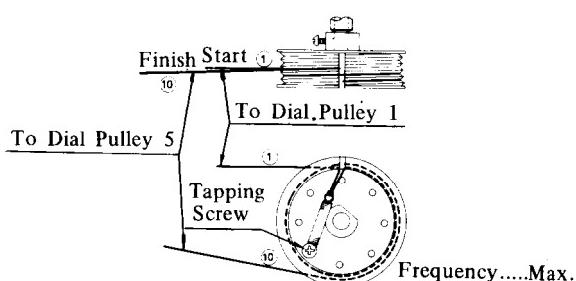
5. REPLACING POWER FUSE (U.S.A. MODEL)

- (1) Remove four screws which hold the top cover to the chassis and lift off the top cover.
- (2) Replace a fuse between a back panel and a power transformer.

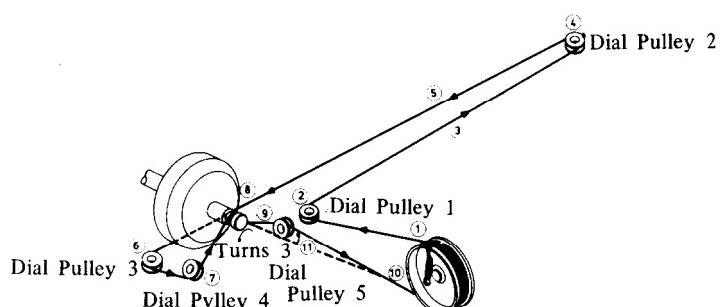
6. REPLACING SPEAKER FUSE

- (1) Remove a screw which hold the fuse cover to the back panel.

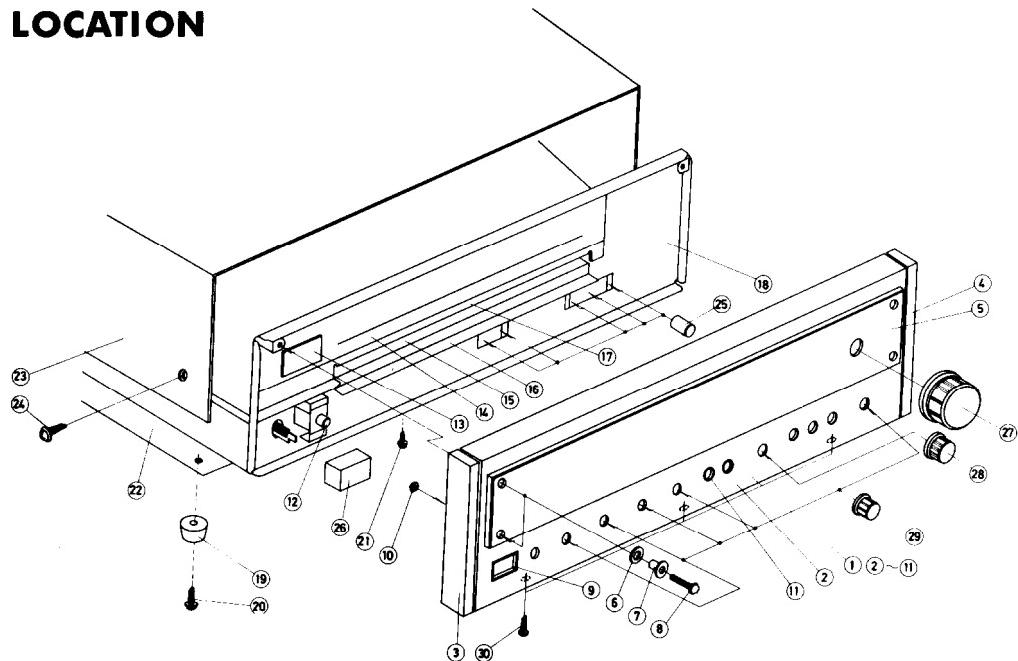
STRINGING DIAGRAM



1. Open the variable capacitor complete and tie dial cord to the spring of the drum.
2. Thread dial cord in the direction of arrow from ① to ⑧ and wind dial cord three turns around the tuning shaft counter-clockwise.
3. Thread dial cord in the direction of arrow from ⑨ to ⑩.
4. Thread dial cord to the dial pulley 5.



COMPONENT LOCATION



PARTS LIST

REF. NO.	PARTS NO.	DESCRIPTION	REF. NO.	PARTS NO.	DESCRIPTION
1	13779121	Front Panel Ass'y	16	27300036	PPointer Rail
2	27210067	Front Panel	17	28165031	Pointer
3	28125039A	End Cap, Left	18	27110037	Front Bracket
4	28125040A	End Cap, Right	19	280379	Leg
5	28191016A	Dial Glass	20	831130162	3STW+16BQ
6	870054	Washer	21	831130062	3STW+6BQ
7	27270017A	Spacer	22	27170024	Bottom Board
8	84334015	M4x15 Hex Volt	23	28184023A	Amp. Cover (U.S.A. Model)
9	27267026	Power Switch Guide		28184024	Amp. Cover (Universal Model)
10	863140	N-4F-N Nut	24	838440109	4TTB+10C (BC)
11	27267010	Push Switch Guide	25	28320133	Push Button A
12	25045018	LJ-100-H Stereo Headphone Jack	26	28320171A	POWER Knob
13	243069	NIND-0500S69 Strength Meter	27	28320170	TUNING Knob
14	28130048A	Dial Plate	28	2830132	VOLUME Knob
15	27240011	Bracket, Dial Plate	29	28320131	TONE Knob
			30	834130062	3STS+6BQ

PC BOARD PARTS LIST

NAAR-395 PC. BOARD—PARTS LIST

CIRCUIT NO.	DESCRIPTION	STOCK NO.	CIRCUIT NO.	DESCRIPTION	STOCK NO.
TRANSISTORS					
Q001	2SC380(O) or FM RF. Amp. 2SC380(Y)	2210123 or 2210124	Q102	LA1230, Quadrature Det.	222455
Q002	2SC785(O-1), Mixer	2210380	Q103	LA3350, MPX.	222449
Q003	2SC394(O), FM OSC.	2210393	Q104	HA-1151, AM	222418
Q101	2SC380(O) or FM IF Amp. 2SC380(Y)	2210123 or 2210124	Q301, Q401	TA7129(ONK), EQ. Amp.	222451
Q105	2SC1317(R) or Locked Lamp Switch	2210943 or 2211182	Q501, Q502	STK-075, Power Amp.	222010
Q106	2SC1317(Q) or Mono-ST. Switch	2210942 or 2210244	DIODES		
Q107	2SC945(L) (K) or Muting	2210741 or 2211184	D001	1S2687, Variable Capacitor	223110
Q108	2SC1740(S), Locked Lamp Switch	2211184	D101, D102		
Q302, Q402	2SC1312(G) or Tone Amp. 2SC1344(E)	2210137 or 2210975	D105, D108	1S1555	223105
Q701, Q702	2SC733(BL) or Transient Killer	2210086 or 2211184	D702-D704		
Q703	2SC1740(S)	2211184	D106	VD1212, Varistor	4000022
	2SC1318(R) or Rectifier	2211043 or 2211044	D109	1N60	223103
	2SC1318(S)		D701	1S1554	223106
			D901, D903	GP-15B	223842
			D905, D907		
			D909, D910	10D2	223805
			D911	1S1886 or	223806
			D912	BZ-130	223929
			D913	WZ-150	223915

NAAR-395 PC. BOARD—PARTS LIST

CIRCUIT NO.	DESCRIPTION	STOCK NO.	CIRCUIT NO.	DESCRIPTION	STOCK NO.
COILS					
L001	NFA 3001 or FM RF. NFA-3009	233088-1 233106	C701	4.7μF50V, Elect.	352780471
L002	NFRF-3005, FM RF.	233103	C702	220μF16V, Elect.	352742211
L003	NFT-1501, FM RF.	233037	C705	22μF35V, Elect.	352762201
L004	NFO-3003, FM OSC.	233090	C706	220μF35V, Elect.	352762211
L101	NCCH-1501 or 3.3μH NCCH-1005	233024 233105	C914	470μF50V, Elect.	352784711
L102	NCCH-1506 18μH	233074	C915	470μF35V, Elect.	352764711
L103, L104	NMC-8-5, L.P.F.	233021	C916	100μF16V, Elect.	352741011
L106	NMO-2503, AM OSC.	232013	VARIABLE RESISTORS		
T001	NIT-0518, FM IF.	233085	R149	N10HR1KBC, Separation Adjust.	5225018
T101	NIT-3516 or FM Det. NFIF-6003	233083 233101	R152	N10HR5KBC, 19 kHz Adjustment	5225056
T102	NIT-0519, AM Det.	232041	R336, R436	N24RGP250KBT30-41C, Volume	5172042
X101, X102	SFE-10.7MA, FM IF.	3010003	R342	N16RL100KW30, Balance	5104046
X103	CFZ-455C, AM IF.	3010004	R345, R351 R445, R451	N16RGM100KB30, Tone	5148014
TRANSFORMERS					
T001	NIT-0518, FM IF.	233085	R701	1.2kΩ2W, Oxide Film	441721224
T101	NIT-3516 or FM Det. NFIF-6003	233083 233101	R709	620Ω1W, Oxide Film	431626214
T102	NIT-0519, AM Det.	232041	R904	100Ω2W, Oxide Film	441721014
CERAMIC FILTERS					
X101, X102	SFE-10.7MA, FM IF.	3010003	K905	220Ω2W, Oxide Film	441722214
X103	CFZ-455C, AM IF.	3010004	R157	560Ω1W, Oxide Film	431625614
CAPACITORS					
VC001— VC005	NVC2-327SA, Variable	3050004	SWITCHES		
TC005	NTC-10P02, Trimmer	3060003	S801	NRS-143-30ZV, Source Selector	25030075
C107	4.7μF, 25V, Elect.	35275047	S802— S804	NPS-122X3LA, Mut. Tape-1, 2	25035032
C106	22μF10V, Elect.	35273220	S805, S806	NPS-222-L14A, Loudness, Mode	25035049
C110, C142	10μF16V, Elect.	352741001	TERMINALS		
C143	1μF50V, Elect.	352780101	P801	NPJ-2PDBL10, Phono Input	25045034
C144, C145	0.22μF±20% 50V, LL	392882297	P802, P803	NPJ-4PDBL11, Tape	25045020
C153	150pF±10% 50V, Polyesteren	372321525	SHIELDED PLATES		
C154	0.47μF±20% 50V, LL	392884797	Front End Top	27150056A	
C155	0.22μF±20% 50V, LL	392882297	FM OSC.	27150057	
C156	0.33μF±20% 50V, LL	392883397	The Universal type adds from the USA model at the following parts.		
C158	220μF16V, Elect.	352742211	S807	NSS-2225, De Emphasis	
C160	47μF10V, Elect.	352734711		Selector Switch	250142
C166	360pF±5% 50V, Polyesteren	372323614	P804	S-13316, DIN Socket	250199
C170	1μF50V, Elect.	352780101	PILOT LAMP PC. BOARD—PARTS LIST		
C173	3.3μF50V, Elect.	352780331	CIRCUIT NO.	DESCRIPTION	STOCK NO.
C175	0.039μF±20% 50V, DE	374123937	PILOT LAMPS		
C176	10μF16V, Elect.	352741001	PL801— PL803	250mA, 6.3V, Dial Illumination	210026
C177	100μF16V, Elect.	352741011		Fuse Holder, SN5051	250113
C178	100μF6.3V, Elect.	352721011	PL804	DIAL POINTER LAMP	210015A
C302, C402	4.7μF25V, Elect.	352750471	L.E.D.PC. BOARD—PARTS LIST		
C303, C304	100μF, 6.3V, Elect.	352721011	CIRCUIT NO.	DESCRIPTION	STOCK NO.
C308, C408	0.47μF50V, Elect.	352784791	D801, D802	SE1103R, L.E.D.	225010
C309, C409	0.33μF±20% 50V, LL	392883397	POWER FUSE PC. BOARD—PARTS LIST		
C311	330μF35V, Elect.	352763311	(Only U.S.A. Model)		
C332, C432	0.047μF±10% 50V, DE	374124735	F901	2A(ST-2), Fuse	252044
C333, C433	2.2μF±20% 50V, LL	392880227		Fuse Holder, SN5051	250113
C335, C435	220μF16V, Elect.	352742211	POWER FUSE PC. BOARD—PARTS LIST		
C336, C436	3.3μF50V, Elect.	352780331			
C337, C437					
C501, C601	1μF±20% 50V, LL	392880107			
C502, C602	33μF10V, Elect.	352733301			
C506, C606	100μF16V, Elect.	352741011			
C507, C607	47μF50V, Elect.	352780471			
C508, C608	4.7μF50V, Elect.	352780471			
C511, C611					

POWER FUSE PC. BOARD—PARTS LIST (Only U.S.A. Model)

F901	2A(ST-2), Fuse	252044
	Fuse Holder, SN5051	250113

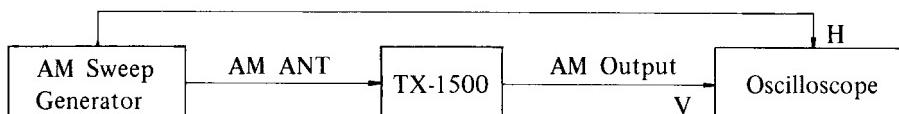
ALIGNMENT PROCEDURES

INSTRUMENTS REQUIRED

1. AM Sweep Generator
2. AM and FM Signal Generator
3. Vacume Tube Voltage Meter (VTVM) AC, DC
4. Oscilloscope
5. Distortion Analyzer
6. Stereo Modulator
7. Frequency Counter

(1) AM IF ALIGNMENT

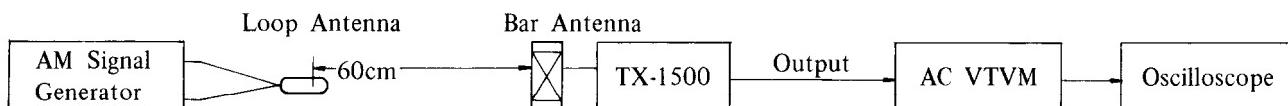
1. Set SELECTOR switch to AM.
2. Set radio dial to quiet point.



Set signal	Adjust	Oscilloscope	Remarks
455 KHz	X103 (CFZ-455C)	Maximum Symmetrical Response	Usually not necessary to adjust

(2) AM RF ALIGNMENT

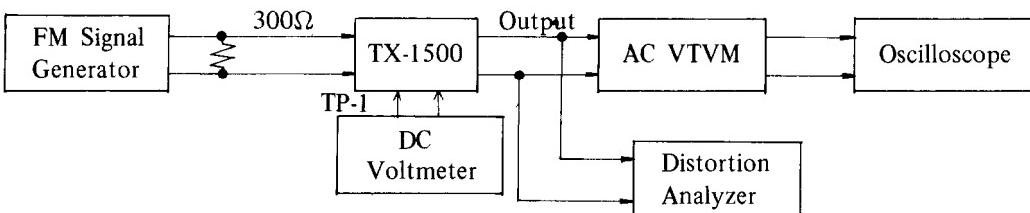
1. Remove a screw on the AM antenna cover.



Step	Set Signal	Set Radio Dial	Adjust	VTVM reading	Remarks
1	515 KHz 400 Hz 30 %	Lower end (515 KHz)	L103 NMO-2503	Maximum	Repeat step 1 and 2 as necessary
2	1680 KHz 400 Hz 30 %	Upper end (1680 KHz)	TC-002	Maximum	
3	600 KHz 400 Hz 30 %	600 KHz	L005 NMA-1008	Maximum	Repeat step 3 and 4 as necessary
4	1400 KHz 400 Hz 30 %	1400 KHz	TC-001	Maximum	

(3) FM FRONT END ALIGNMENT

1. Set SELECTOR switch to FM.
2. Push MUTING switch to off.
3. Connect FM Signal Generator to 300-ohm antenna terminals.
4. Connect DC Voltmeter to TP-1 terminals.



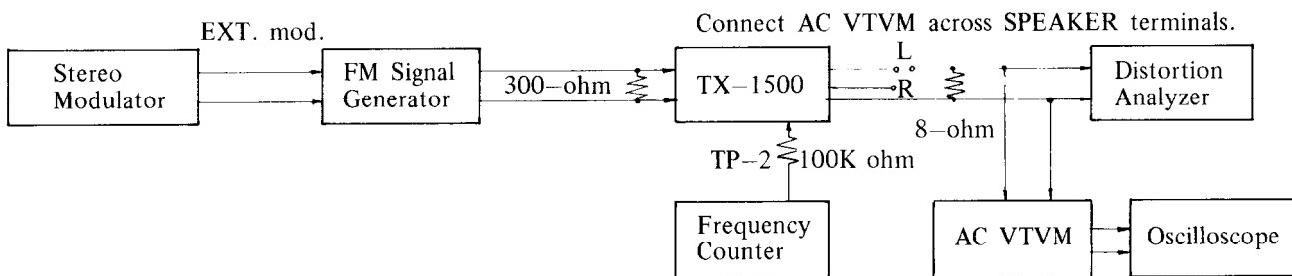
GENERAL ALIGNMENT CONDITIONS

1. Signal input should be kept as low as possible.
2. Standard modulation is 400Hz 30% (AM), 400Hz 100% (FM MONO) pilot 10% sub and main 90% (FM STEREO).

Step	FM Signal Generator	Dial to set	Adjust	Output Indicator	Adjust for	Remarks
1	No signal	Quiet Point	T101 Bottom	DC Voltmeter	OV	Repeat step 1 and 2 as necessary.
2	98 MHz 60 dB 400 Hz 100% mod.	98 MHz	T101 Top	Distortion Analyzer	Minimum	
3	90 MHz 60 dB 400 Hz 100% mod.	90 MHz	L004 OSC Coil NFO-3003	AC VTVM or Oscilloscope	Maximum	
4	106 MHz 400 Hz 60 dB 100% mod.	106 MHz	TC005		Maximum	
5	90 MHz 400 Hz 100% mod.	90 MHz	L001, L002		Maximum	Repeat step 5 and 6 as necessary.
6	106 MHz 400 Hz 100% mod.	106 MHz	TC003 TC004		Maximum	
7	98 MHz 400 Hz 100% mod.	98 MHz	T001 NIT-0518		Maximum	

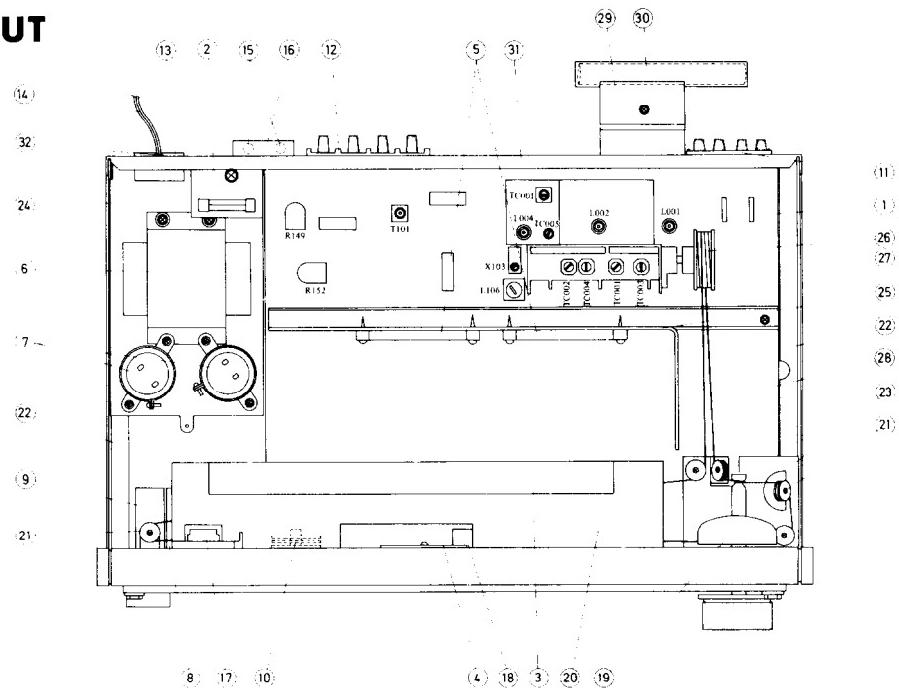
NOTES: When adjust step 5 and 6, set FM Signal Generator level as low as possible.

(4) FM MONO DISTORTION AND MULTIPLEX ALIGNMENT



Alignment	Step	FM Signal Generator	Stereo Modulator	Dial to set	Adjust	Output Indicator	Adjust for	Remarks
Mono Distortion		98 MHz 400 Hz 100% mod. 60 dB		98 MHz	T101 Bottom	Distortion Analyzer	Minimum	
19 KHz	1	98 MHz 400 Hz no mod. 60 dB		98 MHz	R152	Frequency Counter	19000 ± 19 Hz	
	2	STEREO INDICATOR should light up when stereo program is being received.						
Multiplex	1	98 MHz EXT. Mod.	Pilot Sig. 10% Main & Sub Sig. 1 KHz Lch 90%	98 MHz	R149	AC VTVM Right ch.	Minimum	Repeat step 1 & 2 as necessary
	2	Same as above	Pilot Sig. 10% Main & Sub Sig. 1 KHz Rch 90%	98 MHz	R149	AC VTVM Left ch.	Minimum	

CHASSIS LAYOUT



PARTS LIST U.S.A. Model

REF. NO.	PARTS NO.	DESCRIPTION
1	13779595	NAAR-395 Tuner and Pre/Main Amp. P.C.B.
2	13779596	NAFU-396 Power Fuse P.C.B.
3	13779597	NAPL-397 Dial Illumination Lamp P.C.B.
4	13779599	NAPL-399 STEREO/LOCKED Indicator P.C.B.
5	222010	STK-075 Power Amp. IC
6	230185	NPT-616D Power Transformer
7	3504081	4700μF35V Elect. Capacitor
8	3504012	0.01μF±20% 125V UL Capacitor
9	25035047	NPS-111-L12P Power Switch
10	25030074	NRS-144-30Y Speaker Selector Switch
11	25060003	NTM-4PUN1-L Antenna Terminal
12	25060001A	NTM-4WPUN1 Speaker Terminal
13	25050008A	S-16432 AC Outlet
14	253072	AS-UC AC Cord
15	252025	2.5A-T Speaker Fuse
16	25050004	Fuse Holder with Cover
17	243069	NIND-0500S69 Strength Meter
18	27110037	Front Bracket
19	27205006	Drive Shaft Ass'y
20	27250011A	Lamp Case
21	27185003	Dial Pulley
22	27115018	Side Bracket
23	27140144	Bracket, Dial Pulley
24	27130098	Bracket, Power Transformer
25	27160024	Heat Sink
26	27200019	Dial Drum
27	273803	Dial Drum Spring
28	273903	Dial Cord
29	27190024	AM Antenna Case
30	232063	NMA-1008 AM Bar Antenna
31	27120065A	Back Panel
32	270025	SP-3P-4 Strainrelief

Universal Model

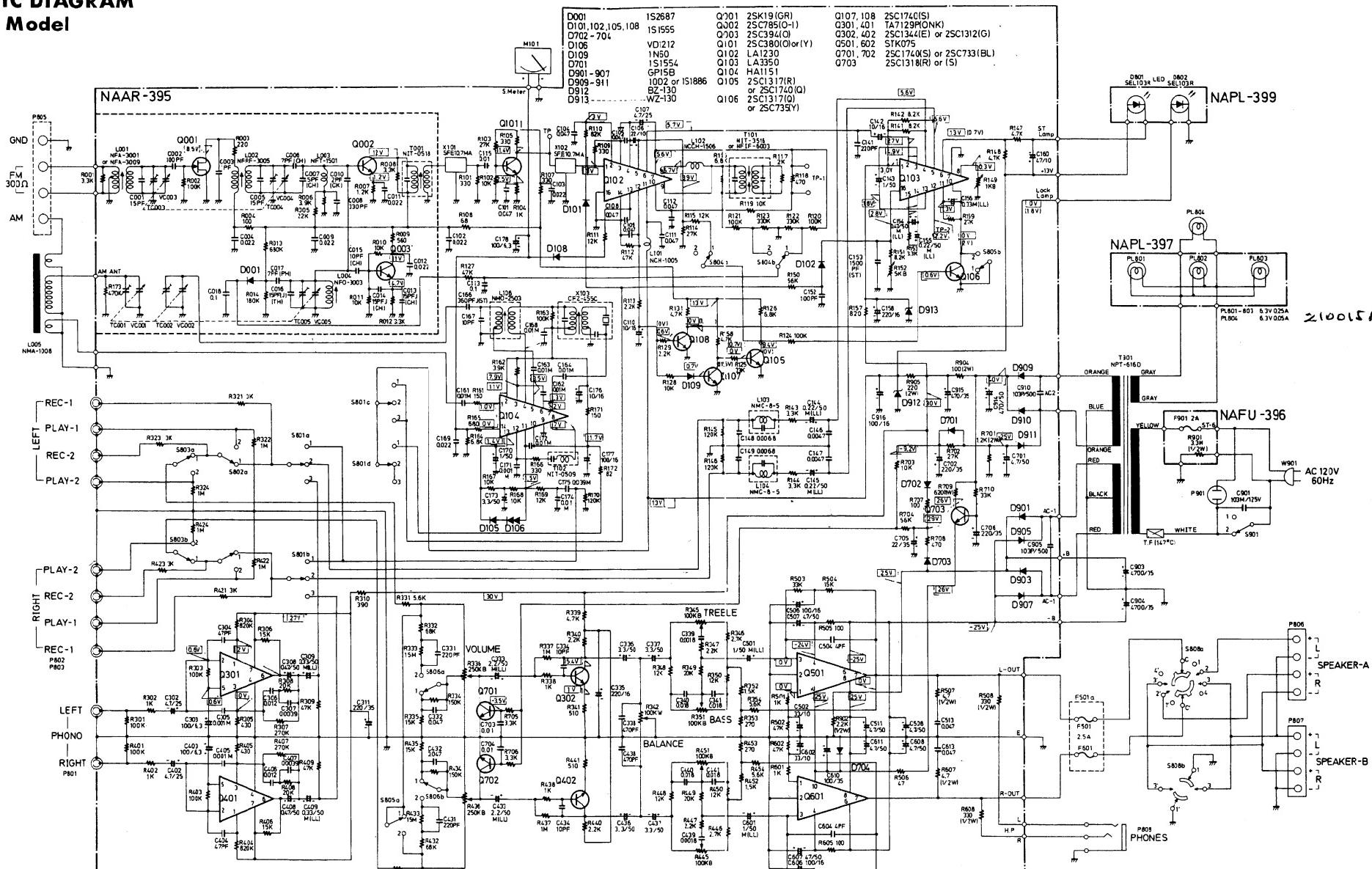
REF. NO.	PARTS NO.	DESCRIPTION
1	13780595A	NAAR-395a Tuner and Pre/Main Amp. P.C.B.
2	None	
3	13779597	NAPL-397 Dial Illumination Lamp P.C.B.
4	13779599	NAPL-399 STEREO/LOCKED Indicator P.C.B.
5	222010	STK-075 Power Amp. IC
6	230186	NPT-616ADGQ Power Transformer
7	3504081	4700μF35V Elect. Capacitor
8	3500052	PME271Y510CÉE IS Capacitor
9	25035034	NPS-121-L Power Switch
10	25030074	NRS-144-30Y Speaker Selector Switch
11	25060003	NTM-4PUN1-L Antenna Terminal
12	25060001A	NTM-4WPUN1 Speaker Terminal
13	None	
14	None	
15	252025	2.5A-T Speaker Fuse
16	25050004	Fuse Holder with Cover
17	243069	NIND-0500S69 Strength Meter
18	27110037	Front Bracket
19	27205006	Drive Shaft Ass'y
20	27250011A	Lamp Case
21	27185003	Dial Pulley
22	27115018	Side Bracket
23	27140144	Bracket, Dial Pulley
24	27130098	Bracket, Power Transformer
25	27160024	Heat Sink
26	27200019	Dial Drum
27	273803	Dial Drum Spring
28	273903	Dial Cord
29	27190024	AM Antenna Case
30	232063	NMA-1008 AM Bar Antenna
31	27120066	Back Panel
32	None	

The Universal Model adds from the U.S.A. Model at the following parts.

25050018	PA-125, 3P Inlet
252015	1.5A-T Power Fuse
250227	SFO40A3 PS Plug
253083	AS-CEE AC Cord
250186	SI-7205-7 VS Socket

SCHEMATIC DIAGRAM

U.S.A. Model



SWITCH

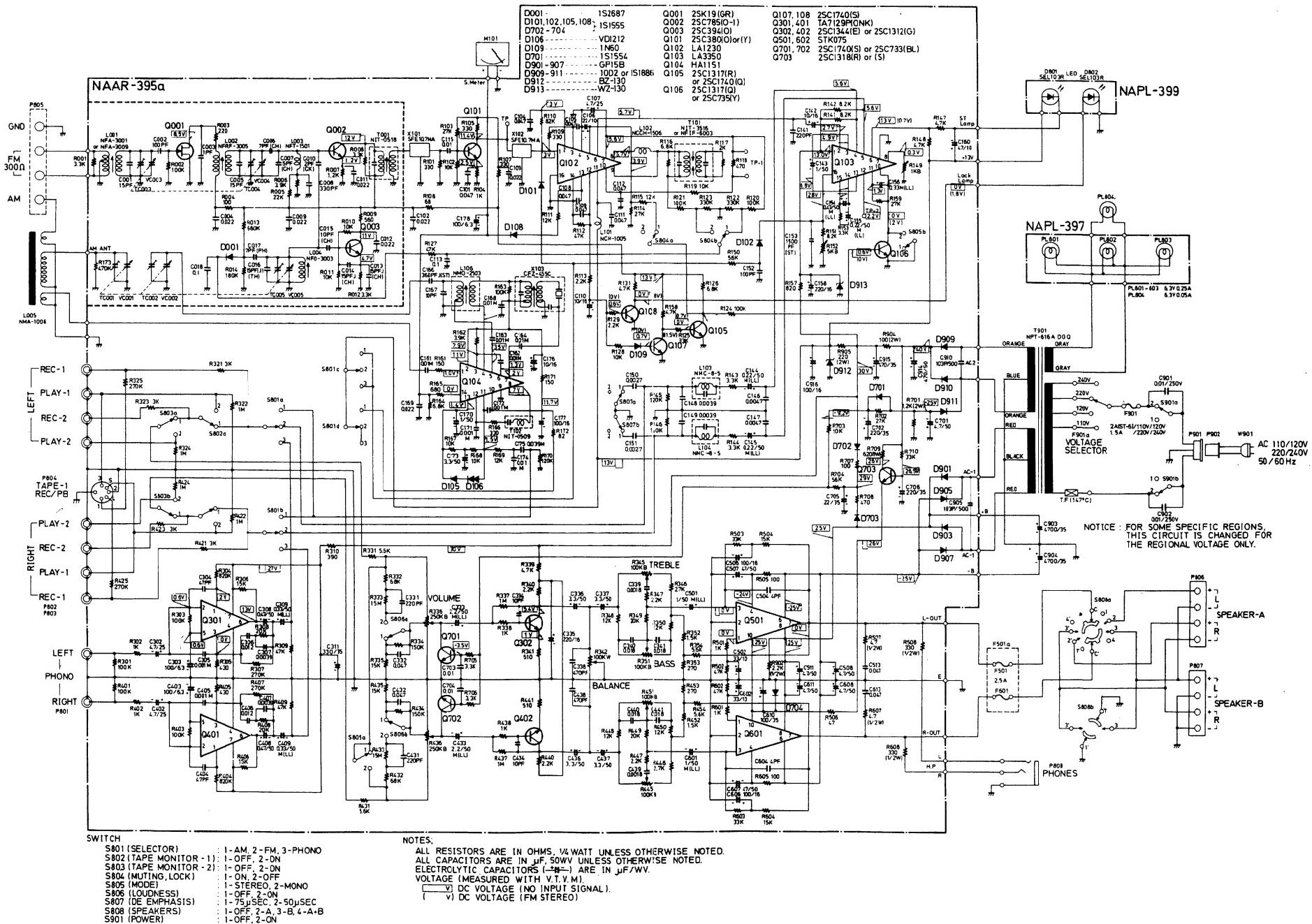
S801 (SELECTOR)	: 1-AM, 2-FM, 3-PHONO
S802 (TAPE MONITOR - 1)	: 1-OFF, 2-CN
S803 (TAPE MONITOR - 2)	: 1-OFF, 2-CN
S804 (MUTING, LOCK)	: 1-ON, 2-OFF
S805 (MODE)	: 1-STEREO, 2-MONO
S806 (LOUDNESS)	: 1-OFF, 2-ON
S808 (SPEAKERS)	: 1-OFF, 2-A, 3-B, 4-A+B
S901 (POWER)	: 1-OFF, 2-ON

NOTES:

ALL RESISTORS ARE IN OHMS, 1/4 WATT UNLESS OTHERWISE NOTED.
ALL CAPACITORS ARE IN μ F, 50V UNLESS OTHERWISE NOTED.
ELECTROLYTIC CAPACITORS (---) ARE IN $\mu\text{F}/\text{VW}$.
VOLTAGE (MEASURED WITH V.T.V.M.)
[] DC VOLTAGE (NO INPUT SIGNAL).
[] DC VOLTAGE (FM STEREO).

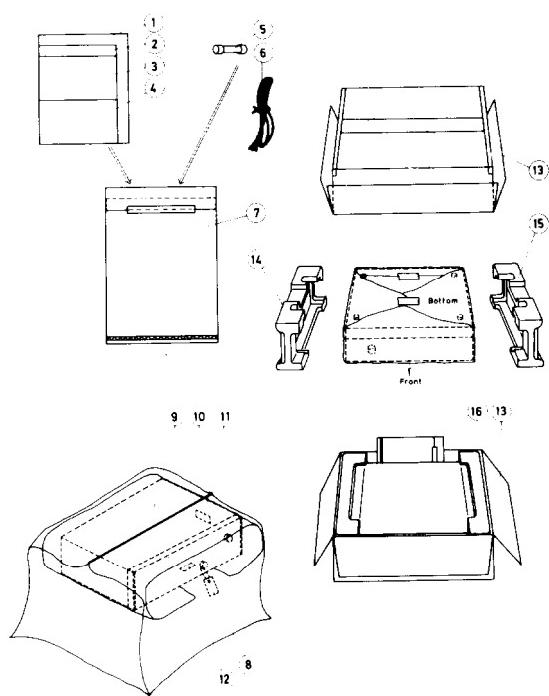
SCHEMATIC DIAGRAM

Universal Model



PACKING PROCEDURES

U.S.A. Model

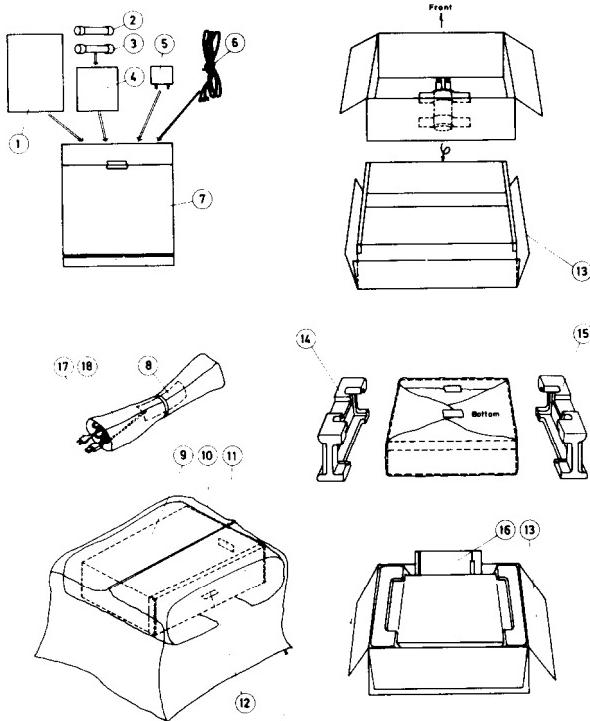


1. All printed material and accessory items are placed in a poly bag.
2. The AC Cord is wrapped in paper and wound a rubber band.
3. The cabinet composite tag is attached to the volume control.

PARTS LIST

REF. NO.	PARTS NO.	DESCRIPTION
1	29340191	Instruction Manual
2	29358001	Service Station List
3	29355046	Caution Card for Warranty Card
4	29365003	Warranty Card
5	292025	Fuse
6	292064	FM Antenna
7	29100006A	Poly Bag
8	29380024	Tag, Cabinet Composite
9	29095027	Sheet 330x1100(m/m)
10	29100018	Poly Bag 650x750(m/m)
11	282969	Caution Label A
12	293041	Caution Label
13	29050111	Carton Box
14	29090187	Pad, Right
15	29090188	Pad, Left
16	29090188	Accessory Bag Complete

Universal Model



1. All printed material and accessory items are placed in a poly bag.
2. The Voltage Tag is attached to the plug of AC Cord.
3. The AC Cord is wrapped in paper and wound a rubber band.

PARTS LIST

REF. NO.	PARTS NO.	DESCRIPTION
1	29340210	Instruction Manual
2	252044	Fuse 2A(ST-6)
3	292025	Fuse
4	29100002	Poly Bag 80x150(m/m)
5	25055018	Conversion Plug CV-K-1
6	292064	FM Antenna
7	29100002	Poly Bag
8	293268	Voltage Tag
9	29095027	Sheet 330x1100(m/m)
10	29100018	Poly Bag 650x750(m/m)
11	282969	Caution Label A
12	293041	Caution Label
13	29050111	Carton Box
14	29090187	Pad, Right
15	29090188	Pad, Left
16	13782119	Accessory Bag Complete
17	13876801	AC Cord
18	290076	AC Cord Wrapper

The Germany type differs from the Universal model at the following points.

1	29340211	Instruction Manual
3.5	None	
16	13782119	Accessory Bag Complete
17	253089	AC Cord AS-VDE-C
	29365001-1	Warranty Card (Addition)